

AMENDMENT

Please amend the application as follows:

In the claims:

Please replace claims 3-5, 9, 10, 13, and 14-23 with amended claims 3-5, 9, 10, 13, and 14-23 as follows:

H₁
-- 3. (Twice Amended) The polynucleotide of claims 1, 2, 5, 13, or 14, wherein the polynucleotide is DNA.

4. (Twice Amended) The polynucleotide of claims 1, 2, 5, 13, or 14, wherein the polynucleotide is RNA.

5. (Twice Amended) An isolated polynucleotide selected from the group consisting of:

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(a) a polynucleotide having phosphatase activity and having at least 70% identity to a polynucleotide encoding an enzyme having phosphatase activity contained in ATCC Deposit No. 97379, or enzymatically active fragments thereof, wherein said enzyme is obtained from *Ammonifex degenesii* KC4; and

(b) a polynucleotide complementary to the polynucleotide of (a).

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9. (Twice Amended) A process for producing a recombinant cell comprising: transforming or transfecting a cell with the vector of claim 6 such that the cell expresses the polypeptide encoded by the DNA contained in the vector.

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10. (Thrice Amended) A thermostable phosphatase of which at least a portion is encoded by a polynucleotide of claim 14 and wherein the thermostable phosphatase comprises an amino acid sequence which is at least 70% identical to the amino acid sequence as set forth in SEQ ID NO: 28.

13. (Amended) An isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide encoding a polypeptide having phosphatase activity and having at least 70% identity to a polynucleotide that encodes the polypeptide sequence of SEQ ID NO:28, or enzymatically active fragments thereof; and
- (b) a polynucleotide complementary to (a).

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14. (Amended) An isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide that encodes a polypeptide having at least 70% identity to SEQ ID NO:28 or enzymatically active fragments thereof, wherein the polypeptide has phosphatase activity; and
- (b) a polynucleotide complementary to (a).

15. (Amended) A polynucleotide fragment having a length of at least 15 nucleotides, wherein the nucleotides are contiguous bases of the polynucleotide of claim 1 and hybridizes with specificity to a polynucleotide that encodes a polypeptide having activity as a phosphatase or its complement, or an enzymatically active fragment of the phosphatase, under hybridization conditions comprising 0.9M NaCl, 50 mM NaH₂PO₄, and 0.5% SDS at 45°C.

16. (Amended) A polynucleotide fragment having a length of at least 15 nucleotides, wherein the nucleotides are contiguous bases of the polynucleotide of claim 2 or its complement and hybridizes with specificity to a polynucleotide that encodes a phosphatase, or an enzymatically active fragment of the phosphatase, or its complement, under hybridization conditions comprising 0.9M NaCl, 50 mM NaH₂PO₄, and 0.5% SDS at 45°C.

17. (Amended) A polynucleotide fragment having a length of at least 15 nucleotides, wherein the nucleotides are contiguous bases of the polynucleotide of claim 5 and hybridizes with specificity to a polynucleotide that encodes a polypeptide that has

phosphatase activity or its complement, under hybridization conditions comprising 0.9M NaCl, 50 mM NaH₂PO₄, and 0.5% SDS at 45°C.

18. (Amended) An enzymatically active fragment of the thermostable phosphatase of claim 10, wherein the fragment comprises at least 30 contiguous amino acid residues and has phosphatase activity.

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19. (Amended) An enzymatically active fragment of the phosphatase enzyme of claim 11, wherein the fragment comprises at least 30 contiguous amino acid residues and has phosphatase activity.

20. (Amended) A polynucleotide fragment having a length of at least 15 nucleotides, wherein the nucleotides are contiguous bases of the polynucleotide of claim 13 and hybridizes with specificity to a polynucleotide that encodes a polypeptide that has phosphatase activity or its complement, under hybridization conditions comprising 0.9M NaCl, 50 mM NaH₂PO₄, and 0.5% SDS at 45°C.

21. (Amended) A polynucleotide fragment having a length of at least 15 nucleotides, wherein the nucleotides are contiguous bases of the polynucleotide of claim 14 and hybridizes with specificity to a polynucleotide that encodes a polypeptide that has phosphatase activity or its complement, under hybridization conditions comprising 0.9M NaCl, 50 mM NaH₂PO₄, and 0.5% SDS at 45°C.

22. (Amended) A polynucleotide probe comprising a nucleic acid sequence consisting of a sequence that hybridizes under stringent conditions to a polynucleotide encoding a polypeptide sequence of SEQ ID NO:28 or its complement, under hybridization conditions comprising 0.9M NaCl, 50 mM NaH₂PO₄, and 0.5% SDS at 45°C.

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23. (Amended) A polynucleotide probe comprising a nucleic acid sequence consisting of a sequence that hybridizes to a polynucleotide encoding a polypeptide having phosphatase activity and having at least 90% identity to the sequence of SEQ ID NO:28, or its complement, under hybridization conditions comprising 0.9M NaCl, 50 mM NaH₂PO₄, and 0.5% SDS at 45°C. --

Please add claims 29 and 30.

-- 29. (New) The polynucleotide of claim 22, wherein the polynucleotide probe further comprises a vector or a plasmid.

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30. (New) The polynucleotide of claim 23, wherein the polynucleotide probe further comprises a vector or a plasmid.--

In the drawings:

Please substitute the formal sheets submitted herewith for the drawing filed on December 23, 1999.